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CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

PLANT OPERATING MANUAL

VOLUME 3

PART 4

# END PATH PROCEDURE

# EPP-22

# ENERGIZING PLANT EQUIPMENT USING DEDICATED SHUTDOWN DIESEL GENERATOR

REVISION 6

Effective Date 5/31/93

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1.0 PURPOSE

This procedure provides instructions for utilizing the Dedicated Shutdown Diesel Generator to provide power to restore RCP seal cooling, place Battery Charger A in service and energize other equipment during a loss of all AC power.

2.0 ENTRY CONDITIONS

EPP-1, Loss Of All AC Power, upon indication that E-1 and E-2 are de-energized.

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|

NOTE

This procedure is to be completed within one hour following a loss of all AC power to prevent damage to the RCP seals and to prevent failure of Battery A.

1. Obtain The Following Prior To Leaving The Control Room:

   - Two-Way Radio
   - Flashlight
   - Locked Valve Key
   - Rad Key
   - Security Key

2. Locally Open The Following DS Bus Breakers:

   - SERVICE WATER PUMP D ALTERNATE FEED BKR. 52/33B
   - COMPONENT COOLING PUMP A BKR. 52/33C
   - CHARGING PUMP A BKR. 52/34B
   - MCC 5 ALTERNATE FEED BKR. 52/34C
   - NORMAL FEED FROM STATION TRANS. 2C BKR. 52/32A

3. Locally Rack Out COMPONENT COOLING PUMP A BKR. 52/33C

   Place transfer switch for CCW Pump A in LOCAL at the Charging Pump Room Panel.

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|
| 4. | Start The DSDG From The Remote DEDICATED SHUTDOWN DIESEL CONTROL PANEL: | |
| | a. Press AND hold the FUEL PRIME button for approximately 20 seconds | |
| | b. Start the DS Diesel | b. Start DS Diesel at DSDG enclosure. |
| | c. Adjust engine speed to 900 rpm using the pistol grip DIESEL GEN. GOVERNOR SWITCH | |
| 5. | Energize The DS Bus From The Remote DEDICATED SHUTDOWN DIESEL CONTROL PANEL In The 4160V Switchgear Room: | |
| | a. Check DS Diesel VOLTMETER DIESEL OUTPUT - APPROXIMATELY 480 VOLTS | a. Adjust voltage. |
| | b. Close CONTROL SWITCH 52/32B DIESEL BREAKER | |
| 6. | Close MCC 5 ALTERNATE FEED BKR. 52/34C, At The DS Bus | |
| 7. | Transfer MCC-5 To The DS Bus Using The Kirk-Key Interlocked Breakers In The Auxiliary Building Hallway Opposite WASTE DISPOSAL BORON RECYCLE PANEL | |
| 8. | Restart Battery Charger A using Attachment 1 | |
| 9. | Close RCP Seal Injection Isolation Valves In The Charging Pump Room: | |
| | • CVC-297A | |
| | • CVC-297B | |
| | • CVC-297C | |

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|
| 10. | Close FCV-626, THERM BAR FLOW CONT Valve In Pipe Alley | Close CC-735, THERM BAR OUT ISO valve in Pipe Alley. |
| 11. | Start CCW PUMP A By Performing The Following:<br><br>a. Hold RTGB control switch for CCW PUMP A in STOP position while racking in COMPONENT COOLING PUMP A BKR. 52/33C in the 4.16KV Room<br><br>b. Start CCW PUMP A from the RTGB | Locally start CCW Pump A:<br><br>1) Place transfer switch for CCW Pump A in LOCAL at the Charging Pump Room Panel.<br><br>2) Rack in COMPONENT COOLING PUMP A BKR. 52/33C in the 4.16KV Room.<br><br>3) Start CCW Pump A at the Charging Pump Room Panel.<br><br>4) IF one CCW Pump can NOT be started, THEN establish emergency cooling to Charging Pump oil cooler using Attachment 1 of AOP-14, Loss Of Component Cooling Water. |
| 12. | Align RWST To Charging Pump Suction By Manipulating The Following Valves In The Charging Pump Room:<br><br>a. CVC-358, RWST to Charging Pump Suction - OPEN<br><br>b. LCV-115C, VCT OUTLET - CLOSED | |

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|
| 13. | Start CHARGING PUMP A As Follows: | |
| | a. Verify closed RCP seal injection isolation valves:<br>• CVC-297A<br>• CVC-297B<br>• CVC-297C | |
| | b. Verify CCW to charging pump oil cooler on FI-660 in the Charging Pump Room | b. Verify emergency cooling to charging pump oil cooler is in service. |
| | c. Start CHARGING PUMP A from the RTGB | c. Start Charging Pump A from the Charging Pump Room Panel:<br>1) Place transfer switch for Charging Pump A to LOCAL.<br>2) Start Charging Pump A. |

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|

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CAUTION

RCP seal injection is established slowly to minimize RCP thermal stresses and potential seal failures.

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14. Re-establish RCP Seal Injection Flow In The Charging Pump Room:

    a. Throttle open RCP SEAL WATER FCVs 1/4 turn:

    - CVC-297A
    - CVC-297B
    - CVC-297C

    b. Check between 1/2 to 2 gpm seal injection flow on each of the following:

    - FI-130 for CVC-297A
    - FI-127 for CVC-297B
    - FI-124 for CVC-297C

    b. Adjust RCP SEAL WATER FCVs.

15. Adjust RCP Seal Injection In The Charging Pump Room - BETWEEN 6 AND 8 GPM On Each Of The Following:

    - FI-130 for CVC-297A
    - FI-127 for CVC-297B
    - FI-124 for CVC-297C

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|

NOTE

The transfer of SW Pump D power from E-2 to the DS Bus also transfers control from the RTGB to the Charging Pump Room Panel.

16. Start SW Pump D By Performing The Following In The CCW Pump Room:

a. Transfer SW Pump D power supply to the DS Bus using the Kirk-Key interlocked breakers

b. Close V6-16C, SW TURB BLDG ISO

b. Close SW TURB BLDG SUPPLIES:

- V6-16A
- V6-16B

c. Close SW-739, CCW HEAT EXCHANGER "A" RETURN

c. Close SW-740, CCW HEAT EXCHANGER "B" RETURN.

1) Open root isolation valves PI-1619A and B.

2) Start SW Pump D from the Charging Pump Room Panel.

3) Throttle SW-739 to obtain SW Header Pressure greater than 40 psig.

4) Go To Step 17.

d. Open Root Isolation Valves PI-1619A AND B.

e. Start SW Pump D from the Charging Pump Room Panel

f. Throttle SW-740, CCW HEAT EXCHANGER "B" RETURN, to obtain SW Header Pressure - GREATER THAN 40 PSIG

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|
| | ********** CAUTION<br><br>CCW to the RCPs is established slowly to minimize thermal shock to the thermal barriers.<br><br>********** | |
| 17. | Establish CCW To RCPs By Performing The Following Actions In Pipe Alley: | |
| | a. Check CC-735, RCP Thermal Barrier Outlet Isolation Valve - OPEN | a. Perform the following:<br><br>1) Verify FCV-626, Thermal Barrier Outlet Flow Control Valve - OPEN<br><br>2) Open CC-735, RCP Thermal Barrier Outlet Isolation Valve.<br><br>3) Go To Step 18. |
| | b. Open FCV-626, Thermal Barrier Outlet Flow Control Valve | |
| 18. | Check FIC-626, CCW Flow From The Thermal Barrier, In The Charging Pump Room - GREATER THAN 50 GPM | Consult Plant Operations Staff To Determine Effectiveness Of CCW System. |
| 19. | Check For Intact RCP Thermal Barrier Pressure Boundary:<br><br>• R-17 - NOT IN ALARM<br><br>• APP-001-C1, RCP THERM BAR COOL WTR HI FLOW - NOT IN ALARM | IF R-17 is in alarm AND thermal barrier hi flow is in alarm, THEN locally close FCV-626 OR CC-735.<br><br>DO NOT attempt to restore CCW flow to thermal barrier with breached pressure boundary. |
| 20. | Verify Instrument Air Compressor A Is Placed In AUTO AND Its Breaker Is Closed On MCC-5 | |

| STEP | INSTRUCTIONS | RESPONSE NOT OBTAINED |
|---|---|---|

NOTE

The charging pump speed controller fails to full speed on a loss of Instrument Air.

21. Start And Stop Charging Pump A As Required To Maintain PZR Level - BETWEEN 21% AND 50%

22. Start HVE-8B, Battery Room Fan

23. Return To Procedure And Step In Effect

- END -

ATTACHMENT 1

BATTERY CHARGER A RESTART

1. Verify Battery Charger A Breaker On MCC-A - OPEN
2. Verify Battery Charger A-1 Breaker On MCC-A - OPEN
3. Verify Battery Charger A AC Supply Breaker On MCC-5 - CLOSED
4. Verify AC Power Breaker On Battery Charger A Panel - CLOSED
5. Depress Power On Pushbutton Momentarily On Battery Charger A Panel
6. Check Charger Energized Red Light Illuminated
7. Check Battery Charger A Voltage 127 to 133 Volts DC
8. Close Battery Charger A Breaker On MCC-A
9. Verify SW-3 Selector Switch On Battery Charger A-1 Is In CHARGER A IN SERVICE Position

NOTE

An extinguished NO AIR FLOW alarm on A and B DS/FP annunciator panels indicates that at least one battery room exhaust fan is running.

10. Check Battery Room Exhaust Fans A AND B - AT LEAST ONE RUNNING

- END -